Ontario

Ministry of Natural Resources

Hon. Alan W. Pope
Minister

John R. Sloan
Deputy Minister

ONTARIO GEOLOGICAL SURVEY

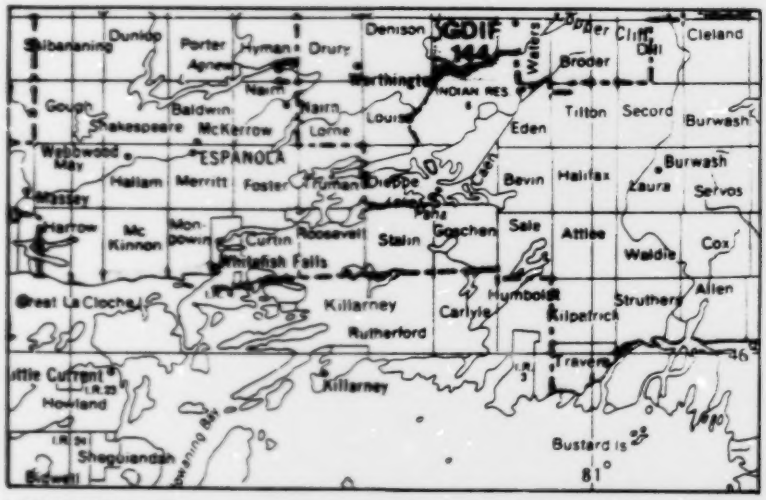
GEOLOGICAL DATA INVENTORY FOLIO

GDIF 144

WATERS TOWNSHIP

DISTRICT OF SUDBURY

Compiled by the Staff of
the Resident Geologist's Office,
Sudbury



LOCATION MAP

Scale 1:1 013 760 or 1 inch to 16 miles

85-1182/

NTS Number 41 I/6

Mining Claim Map Number M 1177

This project was funded by the Ontario Ministry of Northern Affairs through the Northern Ontario Geological Survey (NOGS) Program.

STATEMENT This inventory is unedited Discrepancies may occur for which the Ontario Geological Survey does not assume liability Information from this source may be quoted if credit is given Reference to this inventory should be made as follows

Ontario Geological Survey
1984: Waters Township, Sudbury District; Ontario Geological Survey, Geological Data Inventory Folio [illegible], compiled by the staff of the Resident Geologist's office, Sudbury, 16p. and 2 maps.

Original Compilation by Adlington, Richard January 30th, 1984

Date	Page Revised	Revised by

Date	Page Revised	Revised by

WATERS TOWNSHIP

TABLE OF CONTENTS

Data Sources Checklist 1
Metals and Minerals Reference List 2
Mineral Occurrences 3
Type of Work 4
Drill Hole Summary 5
Airborne Geophysical Survey Data 6
Geochemical Survey Data 7
Miscellaneous Data 8
Newspaper Clipping File 9
ODM General Index Search 10
Selected References 12
Notes and Addenda 18

ACCOMPANYING MAPS

Property Location Map – 1 map

Exploration Data Map – 1 map

Map Scale 1: 31 680 or 1 inch to ½ mile

CONVERSION FACTORS FOR MEASUREMENTS IN ONTARIO GEOLOGICAL SURVEY PUBLICATIONS

If the reader wishes to convert imperial units to SI (metric) units or SI units to imperial units the following multipliers should be used:

CONVERSION FROM SI TO IMPERIAL			CONVERSION FROM IMPERIAL TO SI		
SI Unit	*Multiplied by*	*Gives*	*Imperial Unit*	*Multiplied by*	*Gives*
			LENGTH		
1 mm	0.039 37	inches	1 inch	**25.4**	mm
1 cm	0.393 70	inches	1 inch	**2.54**	cm
1 m	3.280 84	feet	1 foot	**0.304 8**	m
1 m	0.049 709 7	chains	1 chain	20.116 8	m
1 km	0.621 371	miles (statute)	1 mile (statute)	**1.609 344**	km
			AREA		
1 cm^2	0.155 0	square inches	1 square inch	**6.451 6**	cm^2
1 m^2	10.763 9	square feet	1 square foot	**0.092 903 04**	m^2
1 km^2	0.386 10	square miles	1 square mile	2.589 988	km^2
1 ha	2.471 054	acres	1 acre	0.404 685 6	ha
			VOLUME		
1 cm^3	0.061 02	cubic inches	1 cubic inch	**16.387 064**	cm^3
1 m^3	35.314 7	cubic feet	1 cubic foot	0.028 316 85	m^3
1 m^3	1.308 0	cubic yards	1 cubic yard	0.764 555	m^3
			CAPACITY		
1 L	1.759 755	pints	1 pint	0.568 261	L
1 L	0.879 877	quarts	1 quart	1.136 522	L
1 L	0.219 969	gallons	1 gallon	**4.546 090**	L
			MASS		
1 g	0.035 273 96	ounces (avdp)	1 ounce (avdp)	28.349 523	g
1 g	0.032 150 75	ounces (troy)	1 ounce (troy)	**31.103 476 8**	g
1 kg	2.204 62	pounds (avdp)	1 pound (avdp)	**0.453 592 37**	kg
1 kg	0.001 102 3	tons (short)	1 ton (short)	**907.184 74**	kg
1 t	1.102 311	tons (short)	1 ton (short)	**0.907 184 74**	t
1 kg	0.000 984 21	tons (long)	1 ton (long)	**1016.046 908 8**	kg
1 t	0.984 206 5	tons (long)	1 ton (long)	**1.016 046 908 8**	t
			CONCENTRATION		
1 g/t	0.029 166 6	ounce (troy)/ ton (short)	1 ounce (troy)/ ton (short)	34.285 714 2	g/t
1 g/t	0.583 333 33	pennyweights/ ton (short)	1 pennyweight/ ton (short)	1.714 285 7	g/t

OTHER USEFUL CONVERSION FACTORS

1 ounce (troy)/ton (short)	20.0	pennyweights/ton (short)
1 pennyweight/ton (short)	0.05	ounce (troy)/ton (short)

One gram(g) per tonne is equivalent to one part per million (1 ppm).

NOTE–Conversion factors which are in bold type are exact. The conversion factors have been taken from or have been derived from factors given in the Metric Practice Guide for the Canadian Mining and Metallurgical Industries published by The Mining Association of Canada in co-operation with the Coal Association of Canada.

DATA SOURCES CHECK LIST

NOTE: The following sources have been searched to compile the data for this area. If no reference data was found the appropriate box is marked 'no'; if reference data was found, the box is marked 'yes'.

All reference data found are included in the following pages. If the box is blank, the data source has not yet been searched. If the box is marked N.A., the source item is Not Applicable to this area and therefore not searched.

	SOURCES OF DATA	Data	Initial
1	Resident Geologist's Office Files	Yes	R.A.
2	Assessment Files Research Office, Toronto	N.A.	R.A.
3	ODM General Index; 7 volumes	Yes	R.A.
4	Catalogue of Airborne Geophysical Surveys (ODM)	No	R.A.
5	ODM Mineral Resources Circulars and OGS Mineral Deposits Circulars	Yes	R.A.
6	ODM Industrial Mineral Reports	No	R.A.
7	Bibliography of Post Precambrian Theses - Karrow (ODM MP 1)	No	R.A.
8	Bibliography of Precambrian Theses - Ginn (ODM MP 2)	Yes	R.A.
9	Newspaper Clippings File	Yes	R.A.
10	GSC Index to Publications	Yes	R.A.
11	OGS Index to Published Maps and Reports - MP 77 and Supplements to MP 77	Yes	R.A.
12	OGS Index Maps	Yes	R.A.
13	Source Mineral Deposit Records (O.G.S.) Mineral Occurrences File	Yes	R.A.
14	Author - Subject Articles File	Yes	R.A.
15	Miscellaneous Papers: ODM & OGS	Yes	R.A.
16	ODM Geological Circulars: OGS Study Series	Yes	R.A.
17	ODM Preliminary Reports: ODM Bulletins	No	R.A.
18	ODM – OGS Open File Reports	Yes	R.A.
19	OGS Northern Ontario Engineering Geology Terrain Studies	Yes	R.A.
20	OGS Aggregate Resources Inventory Papers	No	R.A.
21	OGS Mineral Potential Maps	Yes	R.A.
22	Theses on File, Sudbury	Yes	R.A.
23	Aerial Photographs on File, Sudbury	Yes	R.A.

METALS AND MINERALS REFERENCES LIST

- △ anh. . . . . Anhydrite
- △ ank. . . . . Ankerite
- △ anna . . . . . Annabergite
- △ ap. . . . . Apatite
- △ arg . . . . . Argentite
- △ As . . . . . Arsenic
- △ asp . . . . . Arsenopyrite
- △ asb . . . . . Asbestos
- △ ba. . . . . Barite
- △ be. . . . . Beryl
- △ Bi. . . . . Bismuth
- △ bn . . . . . Bornite
- △ bran . . . . . Brannerite
- △ bruc . . . . . Brucite
- △ Cd . . . . . Cadmium
- △ calc. . . . . Calcite
- △ carb . . . . . Carbonate
- △ cel . . . . . Celestite
- △ cc. . . . . Chalcocite
- ▲ cp. . . . . Chalcopyrite
- △ ch. . . . . Chert
- △ clay . . . . . Clay
- △ Co . . . . . Cobalt
- △ cob. . . . . Cobaltite
- △ cb. . . . . Columbite
- ▲ Cu . . . . . Copper
- △ cor . . . . . Corundum
- △ dol . . . . . Dolomite
- △ ep. . . . . Epidote
- △ ery . . . . . Erythrite
- △ fel . . . . . Feldspar
- △ fl . . . . . Fluorite (fluorspar)
- △ fu. . . . . Fuchsite
- ▲ gn. . . . . Galena
- △ gt. . . . . Garnet
- △ goe. . . . . Goethite
- ▲ Au . . . . . Gold
- △ gf. . . . . Graphite
- △ gl . . . . . Gravel
- △ gyp. . . . . Gypsum
- △ hem . . . . . Hematite
- △ il . . . . . Ilmenite
- △ Fe . . . . . Iron
- △ IF. . . . . Iron Formation
- △ jas . . . . . Jasper
- △ kaol . . . . . Kaolinite (kaolin)
- △ ky . . . . . Kyanite
- △ Pb . . . . . Lead
- △ lim . . . . . Limonite
- △ Li. . . . . Lithium
- △ mgst . . . . . Magnesite
- △ mag . . . . . Magnetite
- △ mc . . . . . Malachite
- △ Mn . . . . . Manganese
- △ mb . . . . . Marble
- △ mar. . . . . Marcasite
- △ ma . . . . . Marl
- △ mi . . . . . Mica
- △ ml . . . . . Millerite
- △ mo . . . . . Molybdenite
- △ Mo . . . . . Molybdenum
- △ mon . . . . . Monazite
- △ ne. . . . . Nephelite (nepheline)
- △ nc. . . . . Niccolite
- △ Ni. . . . . Nickel
- △ Nb . . . . . Niobium
- △ Pd . . . . . Palladium
- △ peat . . . . . Peat
- △ pent . . . . . Pentlandite
- △ Pt. . . . . Platinum
- ▲ py . . . . . Pyrite
- △ pyl . . . . . Pyrochlore
- △ pyrl . . . . . Pyrolusite
- ▲ po . . . . . Pyrrhotite
- △ q . . . . . Quartz
- △ qcv . . . . . Quartz carbonate vein
- △ ra. . . . . Radioactive minerals
- △ RE . . . . . Rare Earths
- △ sd. . . . . Sand
- △ sgl . . . . . Sand and gravel
- △ ss . . . . . Sandstone
- △ scap . . . . . Scapolite
- ▲ shee . . . . . Scheelite
- △ serp . . . . . Serpentine
- △ sh. . . . . Shale
- △ sid . . . . . Siderite
- ▲ si . . . . . Silica
- ▲ Ag . . . . . Silver
- △ sl . . . . . Slate
- △ sm . . . . . Smaltite
- △ sod. . . . . Sodalite
- △ spec . . . . . Specularite
- △ sp. . . . . Sphalerite
- △ spd . . . . . Spodumene
- △ staur . . . . . Staurolite
- △ stib. . . . . Stibnite
- △ st . . . . . Stone
- △ talc. . . . . Talc
- △ Te . . . . . Tellurium
- △ td. . . . . Tetrahedrite
- △ th. . . . . Thorite
- △ Th . . . . . Thorium
- △ thuc . . . . . Thucholite
- △ ti . . . . . Titanite
- △ Ti. . . . . Titanium
- △ tour . . . . . Tourmaline
- △ trap . . . . . Trap rock
- △ W. . . . . Tungsten
- △ uran . . . . . Uraninite
- △ U . . . . . Uranium
- △ verm . . . . . Vermiculite
- △ Y . . . . . Yttrium
- △ Zn . . . . . Zinc
- △ zr . . . . . Zircon
- ▲ s Sulphide

Solid triangles indicate metal and mineral occurrences shown on the accompanying maps.

MINERAL OCCURRENCES

Map Ref. Letter	Name(s)	Mineralization	Source Mineral Deposit Record	References in OGS Mineral Deposits Circulars & OGS Industrial Mineral Reports	Additional References and/or Remarks
A	Campbell, P.C.	gn,Ag,Au	Au 3	----	Roy, Comm.1890, p.112
B	Kettyle, C.J.	S, Au	---	----	Roy, Comm. 1890, p.112
C	Meatbird Lake Prospect	Cu	Cu11	----	Roy, Comm. 1890. P.433
D	Waters Township Occurrence	po, py, cp	---	MRC 12, p.282	GR 60, p.59 ODM Map 2119 ODM Map p.247
E	Lot 10, Con. 5, Occurrence	po, py, cp	---	----	GR 60, p.59 ODM Map P.247
F	Lot 10, Con. 4, Occurrence	po, py, cp	---	----	Ibid
G	Lot 10, Con. 4, Occurrence	po, py, cp	---	----	Ibid
H	Lot 10, Con. 4, Occurrence	po, py, cp	---	----	Ibid
I	Lot 10, Con. 4, Occurrence	po, py, cp	---	----	Ibid
J	Naughton Quarry	quartz	Si 3	----	Coleman, A.P. Can. Dept. Mines, Pub. No.170, p.103 O.D.M. Annual Reports - See O.D.M. General Index Search Pages
K	Fielding Property	shee	W1	----	Little, H.W., Tungsten Deposits of Can., Econ. Geol. Ser. No.17, pp.169,170, Min. Res. Div. Resource Files "M.C.167-T2-2-134" "Fielding Property"

GDIF FORM NO. 1

4 WATERS TOWNSHIP

TYPE OF WORK		Numbers below represent the year in which the work was done; e.g., 68 for 1968																		
EXPLORATION DATA filed at the RESIDENT GEOLOGIST'S OFFICE SUDBURY	COMPANY/AUTHOR (file number)	GEOLOGICAL	GEOCHEMICAL	TRENCHING, STRIPPING	DRILLING	ASSAY DATA	UNDERGROUND WORK	PROSPECTUS, NOTES, CORRESPONDENCE	AIRBORNE MAGNETOMETER	AIRBORNE ELECTROMAGNETIC	AIRBORNE RADIOMETRIC	GROUND MAGNETOMETER	GROUND ELECTROMAGNETIC	GROUND RADIOMETRIC	INDUCED POLARIZATON	SELF POTENTIAL	RESISTIVITY	PRODUCTION	SHAFT	
1	Canadian Copper Co. Ltd. (Inco Ltd., Naughton Quartz Quarry)																	07[1] -10	07	
2	Fielding Property			-42	?															
3	Inco Ltd.				70															

[1] For Smelter Flux-Replaced by Dill Quartz Quarry

GDF FORM NO. 3

DRILLHOLE SUMMARY

Map Drilling Location Number	Company Name	Company Drillhole Number	Date Drilled	Bearing Azimuth Degrees	Initial Dip of Hole Degrees	Thickness of Overburden Feet	Total Length of Hole Feet	Mineralization Noted in Log	Assay Data Included for
1	Fielding Property	?	?	?	?	?	120	-	-
1a		?	?	?	?	?	100	-	-
2	Inco Ltd.	41262	1970	180	45	0	400	-	-
2a		41263	1970	270	45	0	401	-	-

GDII FORM NO. 3

6

WATERS TOWNSHIP

AIRBORNE GEOPHYSICAL SURVEY DATA

No.	By For	Type of Survey	Flight Altitude	Flight Line Direction	Flight Line Spacing

FORM NO. 1

WATERS TOWNSHIP

Map Sample Site Reference Number	GEOCHEMICAL SURVEY DATA		By	Reference
	Type of Survey	Analysis For		

MISCELLANEOUS DATA

AGE DATING

Site	Method	Material	Reference	Result

NEWSPAPER CLIPPINGS FILE

NOTE: A file of newspaper clippings about the companies listed below, who have worked in this area, is maintained in the Regional/Resident Geologist's Office.

SUDBURY

INCO LTD.

Sudbury Star	December 20, 1983
Sudbury Star	October 15, 1983
Northern Miner	October 21, 1982
Northern Miner	December 5, 1979
Northern Miner	July 26, 1979
Sudbury Star	September 19, 1979
Northern Miner	February 19, 1976
Northern Miner	October 18, 1973
Northern Miner	July 2, 1970
Inco Press Release	August 6, 1968
Sudbury Star	August 6, 1968
Sudbury Star	January 18, 1968
Sudbury Star	April 18, 1967

ODM GENERAL INDEX SEARCH

Words searched:
CAMPBELL, P.C.
KETTYLE, C.J.
MEATBIRD LAKE PROPERTY
NAUGHTON QUARRY

WATERS TP.

Index Volume	Listing:	Report Volume	Part	Page
1	CAMPBELL, P.C.			
	Evidence before R.C. re:			
	Minerals, Sudbury nickel area	R.C.		59
	Waters Tp.	R.C.		112
1	KETTYLE, CHARLES	R.C.		112, 310
1	NAUGHTON, Graham Tp.			
	Quartz quarry near	16	1	64
		18	1	86
		20	1	91
	accident	18	1	56, 69
1	WATERS TP., Sudbury			
	Copper and nickel	R.C.		24, 105
				433
		1		88
	mining	15	1	64
	crystalline schists	1		80
	Gold, silver and galena	R.C.		112
	Nickel	1		88
	Norite	12		242
	Quartz mining for flux	16	1	64
2	WATERS TP., Sudbury			
	Nickel discovery	N.C.		R29
3	WATERS TP., Sudbury			
	Rocks, notes and photos	43	2	19,20
	see also map 43d with	43	2	
4	WATERS TP., Sudbury			
	Rocks	50	6	23,29

GDIF FORM NO. 8

ODM GENERAL INDEX SEARCH

Words searched:

Index Volume	Listing:	Report Volume	Part	Page

GDIF FORM NO. 8

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
		REGIONAL GEOLOGICAL COMPILATION MAPS		
Card, K.D.	1967	Denison - Waters Area	O.D.M. Map 2119	1" = ½ mile
	1971	Panache Lake Area, East Part	O.D.M. Map p.669	1" = 1 mile
Card, K.D.	1966,67	Sudbury Mining Area	O.D.M. Map 2170	1" = 1 mile
Card, K.D. Lumbers, S. B.	1974-75	Sudbury-Cobalt Geological Compilation	O.G.S. Map 2361 Revised	1" = 4 miles
Thomson, J.E.	1968	Espanola Sheet	O.D.M. Map P.105	1" = 2 miles
		GEOPHYSICAL MAPS		
O.D.M. -G.S.C.	1965	Aeromagnetic Maps, Copper Cliff, Ontario	1517G	1" = 1 mile
		Sudbury, Ontario	7067G	1" = 4 miles
Gupta, V. K.	1981	Bouguer Gravity and Generalized Geological Map, Sudbury-Onaping Lake Area, Sudbury and Algoma Districts, Ontario	O.G.S. Map P.2482	1" = 100,000
O.G.S.	1976	Uranium Reconnaissance Program Airborne Gamma Ray Spectrometer Survey, Geophysical Series.	Map P.1610	1:250,000
		SURFICIAL, PLEISTOCENE, TERRAIN ENGINEERING		
Burwasser, G. J.	1979	Quaternary Geology of the Sudbury Basin Area, District of Sudbury	O.G.S. Report 181	
	1979	Quarternary Geology of the Sudbury Area, District of Sudbury	O.G.S. Map 2397	1:50,000

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
Department of Energy, Mines & Resources Surveys and Mapping Branch	1975	Topographic Map, Copper Cliff		1:50,000
Gartner, J. F.	1980	Espanola Area, N.O.E.G.T. Study 99		
	1978	Data Base Map, Espanola	Map 5002	1:100,000
Springer, J.	1977	Ontario Mineral Potential, Northern Part of Sudbury Sheet and Part of North Bay Sheet, Districts of Sudbury and Manitoulin	O.G.S. Map P. 1512	1:250,000
		GEOCHEMICAL		
		No data available as of January 30, 1984		
		GEOLOGICAL REPORTS AND MAPS		
Card, K.D.	1964	Waters Township	O.D.M. p.247	1" = ¼ mile
lue, A.	1899	Mineral Industries of Ontario	O.B.M. AR49	
Card, K.D.	1968	Denison-Waters Area	O.D.M. GR60	
Card, K. D., Innes, D.G. and Debicki, R. L.	1974	Stratigraphy, Sedimentology, Huronian Supergroup of Sudbury-Espanola Area	OFR5107	

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
Coleman, A. P.	1912	Geological Map of Sudbury Nickel Region	Canada Dept. Mines, Mines Branch	1" = 1 mile
	1913	The Nickel Industry	Ibid	p.103
Collins, W. H.	1936	Sudbury Series	G.S.A. Bull. Vol.47, No.11	pp.1675-1690
Cooke, H. C.	1946	Problems of Sudbury Geology, Ontario	G.S.C. Bull. 3	
	1938	Copper Cliff, Sudbury District, Ont.	G.S.C. Map 292A	1" = 1 mile
Little, H. W.	1959	Tungsten Deposits of Canada	Dept. of Mines Econ. Geol. Series No.17	pp.169.170
O.G.S. & Mineral Resources Branch	1982	Mineral Potential Map of Ontario Southern Sheet Magnetic Compliation Map Geological Compilation Map 2197	OFR5328	 1" = 16 miles 1" = 16 miles 1" = 16 miles
Shklanka, R.	1969	Copper, Nickel, Lead and Zinc Deposits of Ontario	MRC12	p.282
Vos, M. A., Smith, B. A. Stevenato, R. J.	1981	Industrial Minerals of the Sudbury Area	OFR5329	

GDIF FORM NO.9

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
Wright, J. F.	1958	Sudbury, Ontario	G.S.C. Map 1063A	1" = 8 miles
Yundt, S. E., et al	1983	Industrial Minerals of Ontario	O.G.S. Map P.2591	1:50,000
		JOURNALS ARTICLES, THESES, TECHNICAL REPORTS		
Casshyap, S. M.	1966	Sedimentary Petrology and Stratigraphy of the Huronian Rocks South of Espanola, Ont. Ph.D., Western	Sudbury Theses File No.2	
Dupuis, L.	1979	The Nature and Origin of the Sudbury Breccia near Lake Laurentian, M.Sc. Laurent	Sudbury Theses File (no number)	
Ease, K. E.	1950	The Huronian Rocks of Northwestern Ontario M.Sc., McG.	MP2	p.34
Innes, D. G.	1977	Proterozoic Volcanism in the Southern Province of the Canadian Shield. M.Sc. Laurent	Sudbury Theses File (no number)	
Long, D. G. F.	1978	Depositional Environments of a thick Proterozoic sandstone; the (Huronian) Mississagi Formation of Ontario, Canada	Can. J. Earth Sci., Vol.15	pp.190-206
Palonen, P. A.	1971	Stratigraphy and Deformational Environment of the Mississagi Formation, Ontario. M.Sc., Calgary	Sudbury Theses File No.18	
Robson, A. M.	1940	Sudbury Breccia, M.A. Queen's	O.D.M. MP2	p.39

GDIF FORM NO.9

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
Royal Commission	1890	Report of the Royal Commission on the Mineral Resources of Ontario		pp.24, 59 105, 112, 310, 433
Royal Ont. Nickel Comm.	1917	Report of the Royal Ontario Nickel Commission with Appendix		p.R29
Siemiatkowska, K. M.	1970	Bibliography on Huronian Geology Covering the Region from Sault Ste. Marie to the Grenville Front.	Sudbury File (no number)	
Slaght, W. H.	1951	A Petrographic Study of the Copper Cliff Offset in the Sudbury District. M.Sc. McG.	Sudbury Theses File No.20	
Speers, E. C.	1956	The Age Relation, and Origin of the Sudbury Breccia (2 Vols.) Ph.D. Queen's.	O.D.M. MP2	p.42
Stephenson, R., et al	1978	Sudbury Mining Area. A Selected Bibliography	Dept. of History Laurentian U.	

WATERS TOWNSHIP

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages

GDIF FORM NO.9

NOTES AND ADDENDA

The Sudbury Igneous Complex, whose surface expression is north of Waters Township, is cut by a low-angle south-dipping thrust fault. The Complex above the fault has moved north relative to the Complex below. Therefore, Waters Township has a potential for copper-nickel ore bodies. However, the depth, approximately two miles or deeper, would tend to make it a potential for the future rather than the present.

Aerial Photographs Index

Scale 1"= ¼ mile

Year	Roll	Line	Numbers
1973	17	4619	223-228
	12	4618	261-266
	13	4617	146-151
1959	9	4618	68, 69
	55	4618	71-75
	10	4617	144-148
	13	4617	14-16
	10	4616	68
	13	4616	119-124
	55	4615	103, 106-109
1946	20	158	47, 48
	19	159	47
	19	160	47
	19	161	48-53

MAPS NOT

FILMED

CARTES

OMISES